

REMARKS/ARGUMENTS

The specification has been amended to remove the mention of claims and to replace this by the actual claim language.

Claims 21 and 22 have been canceled in view of the rejection under 35 U.S.C. 112. The remaining claims have been formally amended in an effort to define the disclosed method more concisely. The subject matter of claim 15 has been incorporated into the main claim. Claims 13, 14, 16-20, 23 and 24 remain in this application.

The rejection of the claims under 35 U.S.C. 102(b) as being anticipated by Tabata et al, cited, is respectfully traversed. The subject matter of amended claim 13 (former claim 15) is respectfully submitted neither to be anticipated by the cited patent, nor to be obvious therefrom.

Tabata et al discloses a method of detecting a welding process voltage between a welding torch and a workpiece. Such methods serve to detect the welding voltage at the arc, taking into account the voltage drop in the welding line, due to interference variables. The detection of the welding process voltage is performed by a calculation, the measuring values whereon the calculation is based, such as the current or the

voltage, are taken off the output terminals of the welding device. The interference variables are the inductance and resistance in the cable between the output terminals and the welding torch.

As is clear from the paragraph bridging columns 6 and 7 of the cited patent, the calculation is performed before the welding operation (col. 7, line 3). For this purpose, Tabata et al provide a load voltage detecting unit 14, a sampling circuit samples the current value in the cable at two different time points, and a memory means calculates the inductance and resistance according to the difference signal of the current values thus sampled (col. 16, lines 36-44).

This method has the disadvantage it is impossible to react to changing interference variables during a welding operation. In the Tabata et al method, the welding operation must be interrupted, and then a new calculation of the welding voltage must be performed while the welding operation is stopped. No optimal welding quality may be obtained at each point in time of the continuing welding operation. In addition, the welding operation is more time-consuming since the calculation of the welding process voltage is not performed while the welding process proceeds, and the ongoing welding process cannot be adjusted in accordance with the calculated interference

variables.

This disadvantage is overcome by applicants by performing the calculation for determining inductance at specific time intervals during the welding process and without affecting the welding process, i.e. without requiring an interruption of the welding process. This is not obvious from, and is in fact contrary to, the Tabata et al teaching, according to which the interference variables are detected before the welding process and remain constant during the process while being stored in a memory.

In contrast to this known method, the calculation of the welding process voltage proceeds in the claimed method not only before but also during the welding process by calculating inductance continuously or at specific time intervals. This substantially enhances the welding quality since the the welding process can be continuously adjusted by a control responsive to changing interference variables as the welding proceeds. This assures a constant, high-quality welding result during the entire welding process.

The problem of a changing inductance and resistance in the cable extending between the output terminal of the welding device and the welding torch arises because the heat coming

from the arc and the welding spot impinges on the cable, which causes the inductance and resistance in the cable to change during the welding process. These changes can be compensated by applicants' claimed method, which assures a better welding quality than obtainable by the prior art and also shortens the welding time.

A sincere effort having been made to overcome all grounds of objections and rejection, favorable reconsideration and allowance of claims 13, 14, 16-20, 23 and 24 are respectfully solicited.

Respectfully submitted,

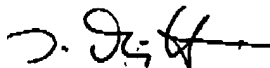
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